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342 If, instead, the side wall pattern of sloping poles is maintained, the end becomes rounded automatically. Finally, the structure may be essentially the expanded tipi. If a tipi be divided vertically in halves and spread, a lodge with parallel sides and rounded ends is automatically obtained. The principal argument in favor of this interpretation is present day practice of the Flathead. To form their "long house" they erect two tipi frames at the proper distance, set a ridge pole from one to the other, add intermediate poles, and place the covering. Against this interpretation are several technical aspects of construction. The typical lodge of the Plateau is not, in fact, two tipis with connecting poles.

So much for the possibilities. The final answer must be based upon the examination of many more details of construction than those presented here, and the consideration of forms over a greater area than the Plateau alone.

BOATS AND CANOES

501 Canoes of the dugout type occur in all parts of the Plateau except among the Flathead. In the Flathead area only the bark canoe, in the west, and the bull boat, in the east, are known. In the northern part of the Plateau the dugout is of distinctly secondary importance, with the bark canoe in first place. The Shuswap and Chilcotin say that the dugout is recent, or at least that it was rare before the coming of metal tools. But all are acquainted with methods of hollowing by burning, except the Kutenai. Hence it seems unlikely that metal tools effected a wholly novel innovation, but rather that they merely increased the use of dugouts. The bark canoes continued to hold first place; the appearance is not that of the introduction of a whole new complex. Teit has asserted that dugout canoes were unknown to the Coeur d'Alêne, Spokane, Kalispel, and Sanpoil.[13] This is explicitly and consistently denied today by informants from all these groups. They have no difficulty in providing information as to ancient techniques; the descriptions are technically plausible and fit into the regional pattern. As far as the Sanpoil are concerned, Teit's information is unquestionably in error. They not only had dugouts but used them extensively. Furthermore, the types built were quite specialized; one was a shovel-nose type with flat, projecting prow and stern; the other was provided with a sharp bow and stern.[14]

Olson has classified the canoes of the Northwest into three types of a general nature.

[13] Teit, *Salishan Tribes*, pp. 108, 248, 350. [14] Ray, *Sanpoil and Nespelem*, pp. 118 f.

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The "shovel-nose" pattern is characterized by rounded prow and stern, sloping upward to a squared end, with a straight gunwale line from prow to stern, and the absence of separate bow and stern pieces. The Nutka or "Chinook" type is pointed at both ends, the bow projects upward and forward and, except on small canoes, is a separate piece. The stern is vertical and raised above the level of the gunwales, the upper portion in all larger canoes being a separate piece. The cross-section is angular, the bottom being almost flat. The Northern canoe is characterized by raised and projecting bow and stern formed of separate pieces, by the vertical cut-water, and by the rounded cross-section.[15]

Of these only the first two appear in the Plateau. The shovel-nose is quite general in distribution, but the Nutka canoe is known only on the Fraser River among the Salish. Olson states that it is probably shared by the Carrier and Chilcotin but this is denied by informants of these groups. Even the Shuswap deny it today, although they are aware of its use lower on the river. Perhaps I interpret Olson's criteria more strictly than he intended, for he cites Morice as his source for attributing the Nutka canoe to the Carrier.[16] The canoe described and figured by Morice is a type quite widely used throughout the Plateau, but hardly conforms to the description for the Nutka form. The stern is not vertical, the cross-section is not angular, and the bow and stern are not provided with separate, raised pieces.[17]

This type may be described as rounded in cross-section, keel line straight amidships but curving gradually upward at bow and stern; the cutwater and stern are somewhat sharpened; the gunwale line is slightly higher at bow and stern than amidships. I have called this the sharp nosed canoe in describing the Sanpoil variant. The type is utilized by the Klikitat, Tenino, Umatilla, Sanpoil, Kalispel, Lillooet, Chicotin, Carrier, and perhaps others. The Tenino and Chilcotin substitute a rounded stern but keep the sharp bow.

Both shovel-nose and sharp nosed canoes are made of the same materials. The selection depends largely upon available wood, cedar usually being preferred and pine being last choice. The peoples of the American Plateau are forced to use pine in most cases although they obtain some cedar as driftwood. Cottonwood is frequently employed in the far north and by the Kutenai.

[15] Olson, *Adze, Canoe and House Types*, p. 19; cf. Waterman and Coffin, *Types of Canoes*.
[16] Olson, *op. cit.*, p. 20.
[17] See Morice, *Notes on the Western Dénés*, pp. 114 f.

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Bark canoes are utilized in all parts of the Canadian Plateau, and by the Colville, Spokane, Kalispel, Coeur d'Alêne, and western Flathead. Two highly distinctive types are found, with a third intermediate

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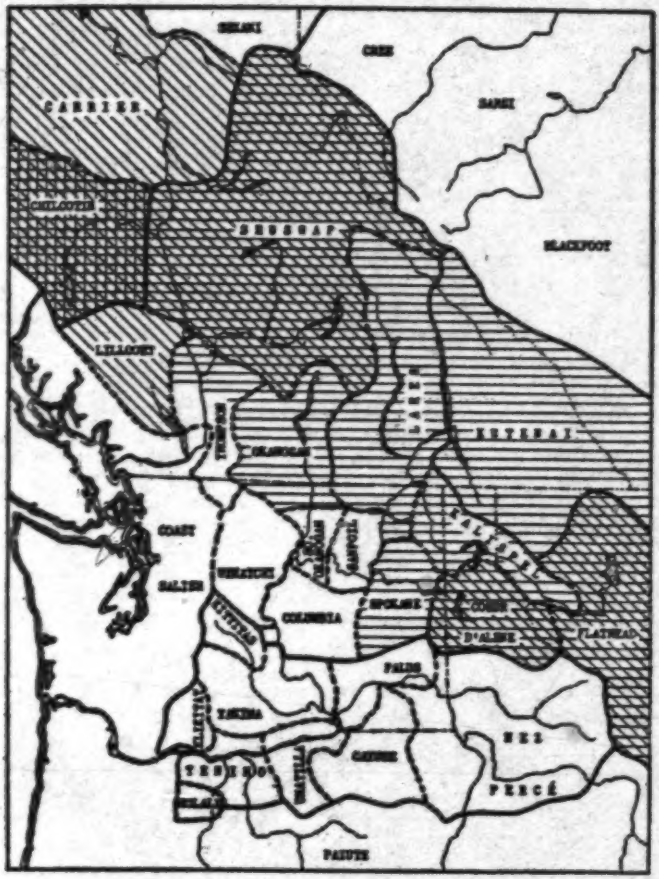

MAP 20. Bark canoes. *Diagonal hatching:* undercut bow and stern; *horizontal hatching:* sturgeon-nose type; *vertical hatching:* vertical bow and stern.

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form. One is the sturgeon-nose type; another has undercut bow and stern; in the third form the bow and stern are vertical.

The sturgeon-nose canoe is pointed under the water line at both bow and stern. The existence of this type among the Kutenai was pointed out years ago by Mason, at which time he called attention to

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the parallel with the canoes of the Amur in eastern Asia.[18] In addition to the Kutenai, these are used by the Kalispel, Flathead, Coeur d'Alêne, Spokane, Colville, Lakes, Okanogan, Upper Thompson, Shuswap, and Chilcotin.[19] They are most extensively employed in the immediate vicinity of the Lakes and Kutenai. This distribution is probably exhaustive; it extends continuously in a broad area from the Chilcotin adjacent to the Coast to the Flathead bordering on the Plains.

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At the two ends of this area appears the second type, with bow and stern curving upward. On the west it is common to the Carrier, Chilcotin, and Lillooet, and finds a slight utilization among the Shuswap. On the east it is shared only by the western Flathead and the Coeur d'Alêne. The third type, characterized by vertical prow and stern, is unique to the Chilcotin. Its occurrence at this point is extremely provocative both because of the extreme western location and the fact that the Chilcotin also possess the other two forms. The three forms in association suggest the possibility of a transition from one form to the other having been made here. If so, the transition must have been from the sturgeon-nose to the undercut type, with diffusion of the latter to the adjacent peoples followed by its extensive utilization and the gradual discarding of the earlier type. This would assume the absence of the bark canoe in the Carrier and Lillooet areas, and the presence of the sturgeon-nose variety among the Shuswap and Chilcotin. The undercut type is the only one known to the Carrier and Lillooet. The other fact requiring this order, granting the transition, is that the area of intensive use of the sturgeon-nose is far to the east. Such a history would conform with Teit's theory that the sturgeon-nose is the older type in the region.[20]

However, it seems far more likely that the vertical ends are merely a compromise in the presence of the two other forms; the result of an attempt, conscious or otherwise, to combine the two types. As such it would have no large historical significance, at least so long as the form remains local. It is true such a combination has not occurred in the other areas in which the two primary forms overlap. But it must be emphasized that the vertical bow is functionally very unsatisfactory, and would hardly persist, even though discovered among a people with

[18] Mason, *Pointed Bark Canoes.*

[19] Teit, *Shuswap*, p. 531; Teit, *Thompson Indians*, p. 255; Teit, *Salishan Tribes*, *loc. cit.*; Mason, *op. cit.*, p. 533.

[20] Teit, *Salishan Tribes*, p. 350.

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501 finely made canoes of extensive utilization. The Chilcotin, on the other hand, are poor canoe makers at best. They waiver from one type to another, including the dugout. The bark canoe with vertical ends is more easily and quickly made than the other types. And, perhaps, not being deeply immersed in a particular tradition, they feel free to experiment with all.

Teit suggests that the undercut bark canoe of the Flathead is very late in time, being an innovation by Iroquois who settled among the Flathead as employes of the fur traders.[21] This interpretation is supported by the very narrow local distribution of the type. More extensive inquiry might make a definitive answer possible, but the larger problem can only be settled when sufficient data are available for an exhaustive comparison of the structural details of eastern and western examples.

The Kutenai and Flathead share the Plains bull boat, and the Klikitat use hides over a frame of uncertain form. The Kutenai and Flathead bull boats are makeshift affairs used for transporting goods or children. No frame is used. Parfleches (rawhide envelopes) are laced together around the paraphernalia to be transported. If necessary, brush is added for additional buoyancy. The Flathead boat is usually pulled by a horse, but among the Kutenai a swimmer tows the burden.

"Rafts of tule" are mentioned by Teit for the Spokane and their neighbors to the east.[22] The Kalispel sometimes bind tule mats on the outside of a bark canoe to increase the buoyancy. Rafts of logs are found everywhere except among the Klamath, Wishram, Klikitat, Nez Percé, and Kutenai.

[21] Teit, *Salishan Tribes*, p. 350.
[22] Teit, *op. cit.*, pp. 108, 248, 350.

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together for matting. Rude bowls and spoons are sometimes dug out of horn or wood, but the fingers, with pieces of bark and small mats are the ordinary table furniture. Skins are dressed by spreading, scraping off the flesh, and for some purposes the hair, with a sharp piece of bone, stone, or iron attached to a short handle, and used like an adze. The skin is then smeared with the animal's brains, and rubbed or pounded by a very tedious process till it becomes soft and white, some hides being previously smoked and bleached with white clay.[171]

On the lower Columbia the Wascos, Kliketats, Walla Wallas, and other tribes use dug-out boats like those of the coast, except that little skill or labor is expended on their construction or ornamentation; the only requisite being supporting capacity, as is natural in a country where canoes play but a small part in the work of procuring food. Farther in the interior the mountain tribes of the Sahaptin family, as the Cayuses and Nez Percés, make no boats, but use rude rafts or purchase an occasional canoe from their neighbors, for the rare cases when it becomes necessary to transport property across an unfordable stream. The Flatheads sew up their lodge-skins into a temporary boat for the same purpose. On the Fraser the Nootka dug-out is in use. But on the northern lakes and rivers of the interior, the Pend d'Oreille, Flatbow, Arrow, and Okanagan, northward to the Ta-

[171] White marl clay used to cleanse skin robes, by making it into a paste, rubbing it on the hide and leaving it to dry, after which it is rubbed off. Saddles usually sit uneasily on the horse's back. *Parker's Explor. Tour*, pp. 105, 232–4. 'Mallet of stone curiously carved' among the Sokulks. Near the Cascades was seen a ladder resembling those used by the whites. The Pishquitpaws used 'a saddle or pad of dressed skin, stuffed with goats' hair.' *Lewis and Clarke's Trav.*, pp. 353, 370, 375, 528. On the Fraser a rough kind of isinglass was at one time prepared and traded to the Hudson Bay Company. *Lord's Nat.*, vol. i., p. 177. 'The Sahaptins still make a kind of vase of lava, somewhat in the shape of a crucible, but very wide; they use it as a mortar for pounding the grain, of which they make cakes.' *Domenech's Deserts*, vol. ii., pp. 64, 243. (Undoubtedly an error.) Pend d'Oreilles; 'les femmes .....font des nattes de joncs, des paniers, et des chapeaux sans bords.' *De Smet, Voy.*, p. 199. 'Nearly all (the Shushwaps) use the Spanish wooden saddle, which they make with much skill.' *Mayne's B. C.*, pp. 301–2. 'The saddles for women differ in form, being furnished with the antlers of a deer, so as to resemble the high pommelled saddle of the Mexican ladies.' *Franchère's Nar.*, pp. 269–70; *Palmer's Jour.*, p. 129; *Irving's Astoria*, p. 317, 365; *Cox's Adven.*, vol. i., pp. 148–9.

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cully territory, the natives manufacture and navigate bark canoes. Both birch and pine are employed, by stretching it over a cedar hoop-work frame, sewing the ends with fine roots, and gumming the seams and knots. The form is very peculiar; the stem and stern are pointed, but the points are on a level with the bottom of the boat, and the slope or curve is upward towards the centre. Travelers describe them as carrying a heavy load, but easily capsized unless when very skillfully managed.[172]

Horses constitute the native wealth, and poor indeed is the family which has not for each member, young and old, an animal to ride, as well as others sufficient to transport all the household goods, and to trade for the few foreign articles needed. The Nez Percés, Cayuses and Walla Wallas have more and better stock than other nations, individuals often possessing bands of from one thousand to three thousand. The Kootenais are the most northern equestrian tribes mentioned. How the natives originally obtained horses is unknown, although there are some slight traditions in support of the natural supposition that they were first introduced from the south by way of the Shoshones. The latter are one people with the Comanches, by whom horses were obtained during the Spanish expeditions to New Mexico in the sixteenth century. The horses of the natives are

[172] 'The white-pine bark is a very good substitute for birch, but has the disadvantage of being more brittle in cold weather.' *Suckley*, in *Pac. R. R. Rept.*, vol. i., p. 296. Yakima boats are 'simply logs hollowed out and sloped up at the ends, without form or finish.' *Gibbs*, in *Id.*, p. 408. The Flatheads 'have no canoes, but in ferrying streams use their lodge skins, which are drawn up into an oval form by cords, and stretched on a few twigs. These they tow with horses, riding sometimes three abreast.' *Stevens*, in *Id.*, p. 415. In the Kootenai canoe 'the upper part is covered, except a space in the middle.' The length is twenty-two feet, the bottom being a dead level from end to end. *Ross' Fur Hunters*, vol. ii., pp. 169–70. 'The length of the bottom of the one I measured was twelve feet, the width between the gunwales only seven and one half feet.' 'When an Indian paddles it, he sits at the extreme end, and thus sinks the conical point, which serves to steady the canoe like a fish's tail.' *Lord's Nat.*, vol. ii., pp. 178–9, 255–7. On the Arrow Lakes 'their form is also peculiar and very beautiful. These canoes run the rapids with more safety than those of any other shape.' *Kane's Wand.*, p. 328. See *De Smet, Voy.*, pp. 35, 187; *Irving's Astoria*, p. 319; *Lewis and Clarke's Trav.*, p. 375; *Hector*, in *Palliser's Explor.*, p. 27; *Stevens*, in *Ind. Aff. Rept.*, 1854, pp. 209, 214, 223, 238.